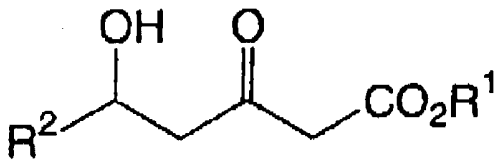
Application No.: 10/705,665 Docket No.: 21581-00240-US1

AMENDMENTS TO THE CLAIMS

In the claims:

Please amend the claims as follows:

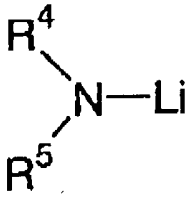
1. (Twice Amended) A process for producing a 5-hydroxy-3-oxopentanoic acid derivative of the following formula (IV):



(IV)

wherein R^1 represents any of an alkyl group of 1 to 12 carbon atoms, an aryl group of 6 to 12 carbon atoms and an aralkyl group of 7 to 12 carbon atoms; and R^2 represents any of hydrogen, an alkyl group of 1 to 12 carbon atoms which may have a substituent, an alkenyl group of 2 to 12 carbon atoms which may have a substituent, an aryl group of 6 to 12 carbon atoms which may have a substituent, a cyano group, a carboxyl group and an alkoxycarbonyl group,

which comprises [permitting] adding a lithium amide of the following formula (III):



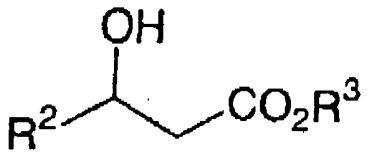
(III)

wherein R^4 and R^5 may be the same or different and each represents any of an alkyl group of 1 to 12 carbon atoms, an aryl group of 6 to 12 carbon atoms, an aralkyl group of 7 to 12 carbon atoms and a silyl group,

to [act upon] a mixture of an acetic acid ester of the following formula (I) and a 3-hydroxypropionic acid derivative of the following formula (II) at a temperature not below -20°C to conduct reaction:

$CH_3CO_2R^1$ (I)

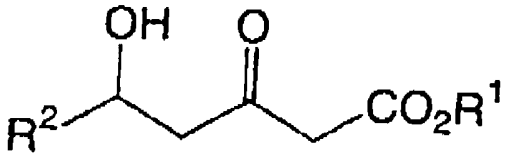
wherein R^1 represents any of an alkyl group of 1 to 12 carbon atoms, an aryl group of 6 to 12 carbon atoms and an aralkyl group of 7 to 12 carbon atoms:



(II)

wherein R^2 represents any of hydrogen, an alkyl group of 1 to 12 carbon atoms which may have a substituent, an alkenyl group of 2 to 12 carbon atoms which may have a substituent, an aryl group of 6 to 12 carbon atoms which may have a substituent, an aralkyl group of 7 to 12 carbon atoms which may have a sustituent, a cyano group, a carboxyl group and an alkoxycarbonyl group; R^3 represents any of an alkyl group of 1 to 12 carbon atoms, an aryl group of 6 to 12 carbon atoms and an aralkyl group of 7 to 12 carbon atoms; and R^2 and R^3 may be joined to each other to form a ring, in the presence of a magnesium halide.

6. (Amended) A process for producing a 5-hydroxy-3-oxopentanoic acid derivative of the following formula (IV):



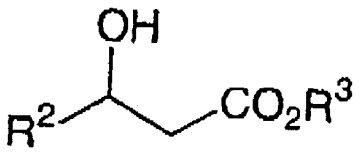
(IV)

wherein R^1 represents any of an alkyl group of 1 to 12 carbon atoms, an aryl group of 6 to 12 carbon atoms and an aralkyl group of 7 to 12 carbon atoms; and R^2 represents any of hydrogen, an alkyl group of 1 to 12 carbon atoms which may have a substituent, an alkenyl group of 2 to 12 carbon atoms which may have a substituent, an aryl group of 6 to 12 carbon atoms which may have a substituent, an aralkyl group of 7 to

12 carbon atoms which may have a substituent, a cyano group, a carboxyl group and an alkoxycarbonyl group, which comprises treating a mixture of an acetic acid ester of the following formula (I) and a 3-hydroxypropionic acid derivative of the following formula (II):

$$CH_3CO_2R^1 \qquad (I)$$

wherein R^1 represents any of an alkyl group of 1 to 12 carbon atoms, an aryl group of 6 to 12 carbon atoms and an aralkyl group of 7 to 12 carbon atoms:



(II)

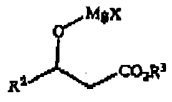
wherein R^2 represents any of hydrogen, an alkyl group of 1 to 12 carbon atoms which may have a substituent, an alkenyl group of 2 to 12 carbon atoms which may have a substituent, an aryl group of 6 to 12 carbon atoms which may have a substituent, an aralkyl group of 7 to 12 carbon atoms which may have a substituent, a cyano group, a carboxyl group and an alkoxycarbonyl group; R^3 represents any of an alkyl group of 1 to 12 carbon atoms, aryl group of 6 to 12 carbon atoms and an aralkyl group of 7 to 12 carbon atoms; and R^2 and R^3 may be joined to each other to form a ring,

with a Grignard reagent of the following formula (V):

$$R^6\text{-Mg-X} \qquad (V)$$

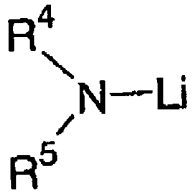
wherein R^6 represents any of an alkyl group of 1 to 12 carbon atoms, an aryl group of 6 to 12 carbon atoms and an aralkyl group of 7 to 12 carbon atoms; and X represents halogen,

to prepare a mixture of a compound of the following formula (VI) and an acetic acid ester of the above formula (I):



(VI)

wherein R^2 represents any of hydrogen, an alkyl group of 1 to 12 carbon atoms which may have a substituent, an alkenyl group of 2 to 12 carbon atoms which may have a substituent, an aryl group of 6 to 12 carbon atoms which may have a substituent, an aralkyl group of 7 to 12 carbon atoms which may have a substituent, a cyano group, a carboxyl group and an alkoxycarbonyl group; R^3 represents any of an alkyl group of 1 to 12 carbon atoms, an aryl group of 6 to 12 carbon atoms and an aralkyl group of 7 to 12 carbon atoms; R^2 and R^3 may be joined to each other to form a ring; and X represents a halogen atom, and [permitting] adding a lithium amide of the following formula (III):

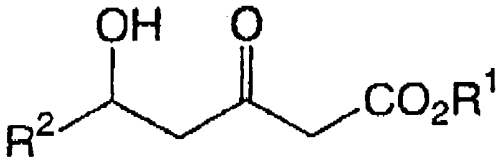


(III)

wherein R^4 and R^5 may be the same or different and each represents any of an alkyl group of 1 to 12 carbon atoms, an aryl group of 6 to 12 carbon atoms, an aralkyl group of 7 to 12 carbon atoms and a silyl group

to [act upon] the mixture at a temperature not below -20° C to conduct reaction.

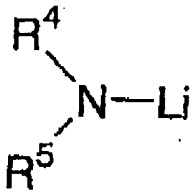
10.(Amended) A process for producing a 5-hydroxy-3-oxopentanoic acid derivative of the following formula (IV):



(IV)

wherein R^1 represents any of an alkyl group of 1 to 12 carbon atoms, an aryl group of 6 to 12 carbon atoms and an aralkyl group of 7 to 12 carbon atoms; and R^2 represents any of hydrogen, an alkyl group of 1 to 12 carbon atoms which may have a subtituent, an alkenyl group of 2 to 12 carbon atoms which may have a substituent, an aryl group of 6 to 12 carbon atoms which may have a substituent, an aralkyl group of 7 to 12 carbon atoms which may have a substituent, a cyano group, a carboxyl group and an alkoxycarbonyl group,

which comprises [permitting] adding a lithium amide of the following formula (III):



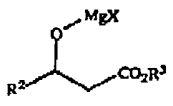
(III)

wherein R^4 and R^5 may be the same of different and each represents any of any alkyl group of 1 to 12 carbon atoms, an aryl group of 6 to 12 carbon atoms, an aralkyl group of 7 to 12 carbon atoms and a silyl group,

to [act upon] a mixture of an acetic acid ester of the following formula (I) and a compound of the following formula (VI) at a temperature not below -20° C to conduct reaction:

$$CH_3CO_2R^1 \qquad (I)$$

wherein R^1 represents any of an alkyl group of 1 to 2 carbon atoms, an aryl group of 6 to 12 carbon atoms and an aralkyl group of 7 to 12 carbon atoms:



(VI)

wherein R^2 represents any of hydrogen, an alkyl group of 1 to 12 carbon atoms which may have a substituent, an alkenyl group of 2 to 12 carbon atoms which may have a substituent, an aryl group of 6 to 12 carbon atoms which may have a substituent, an aralkyl group of 7 to 12 carbon atoms which may have a substituent, a cyano group, a carboxyl group and an alkoxycarbonyl group; R^3 represents any of an alkyl group of 1 to 12 carbon atoms, an aryl group of 6 to 12 carbon atoms and an aralkyl group of 7 to 12 carbon atoms; R^2 and R^3 may be joined to each other form a ring; and X represents a halogen atom.

17.(amended) The process according to claim 1, wherein the [compound (II) or (VI)] the 3-hydroxypropionic acid derivative of the formula (II) or the 5-hydroxy-3-oxopentanoic acid derivative of the formula (IV) is optically active.

18. (amended) The process according to claim 2 wherein, referring to the acetic acid ester of the formula (I), R^1 represents a tert-butyl group.